

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
20 January 2005 (20.01.2005)

PCT

(10) International Publication Number
WO 2005/006474 A1

(51) International Patent Classification⁷: **H01M 8/02**

(21) International Application Number:
PCT/KR2003/002571

(22) International Filing Date:
26 November 2003 (26.11.2003)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
10-2003-0047980 14 July 2003 (14.07.2003) KR

(71) Applicant (for all designated States except US): **SO-GANG UNIVERSITY** [KR/KR]; 1 Shinsu-dong, Mapo-gu, 121-742 Seoul (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **RHEE, Hee-Woo**

[KR/KR]; Da-403, Hyecheong Apt., Samsung-dong, Kangnam-gu, 135-090 Seoul (KR). **SONG, Min-Kyu** [KR/KR]; 154-12 Sangdo 2-dong, Dongjak-gu, 156-831 Seoul (KR). **KIM, Young-Tack** [KR/KR]; Ga-401 Mokhwa Villa, 371-1 Eolyong-li, Pocheon-eup, Pocheon-gun, 487-807 Kyungki-do (KR). **KIM, Ki-Hyun** [KR/KR]; 266-112 Hongje 3-dong, Seodaemun-gu, 120-857 Seoul (KR).

(74) Agent: **PAIK, Nam Hoon**; 14th Fl., KTB Network Bldg., 826-14 Yeoksam-dong, Kangnam-gu, Seoul 135-080 (KR).

(81) Designated States (national): JP, RU, US.

Declaration under Rule 4.17:

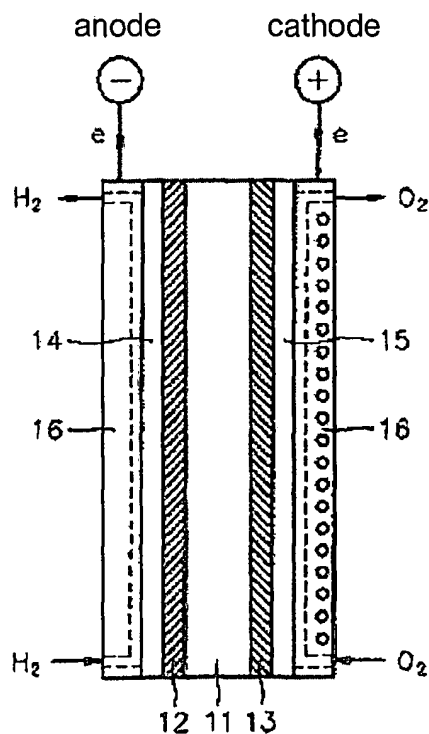
— as to non-prejudicial disclosures or exceptions to lack of novelty (Rule 4.17(v)) for all designations

Published:

— with international search report
— with a declaration as to non-prejudicial disclosures or exceptions to lack of novelty

[Continued on next page]

(54) Title: HIGH TEMPERATURE PROTON EXCHANGE MEMBRANE USING IONOMER/SOILD PROTON CONDUCTOR, PREPARATION METHOD THEREOF AND FUEL CELL CONTAINING THE SAME



(57) Abstract: The present invention relates to a high temperature proton-conducting polymer membrane, a preparation method thereof, a membrane-electrode assembly using the same and a fuel cell containing the same. More particularly, it relates to a proton-conducting polymer membrane enabling fuel cell operation under high temperature and normal pressure condition, wherein sulfoalkyl or sulfoaryl groups are introduced between layers of metal phosphate and cation exchange groups are present in side chains, a preparation method thereof and a membrane-electrode assembly using the proton exchange membrane and a fuel cell containing the same.

WO 2005/006474 A1



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.